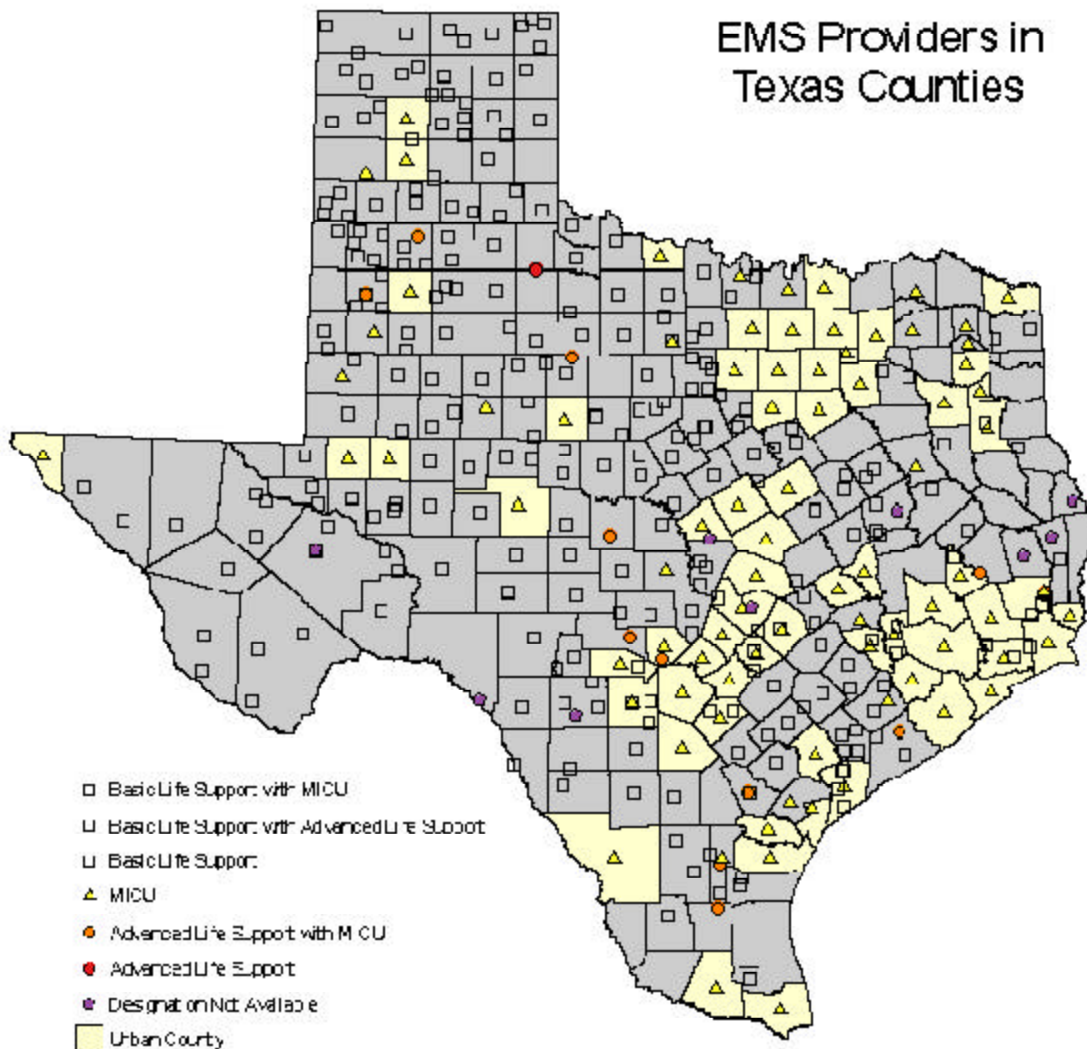


cilities that transfer-out patients requiring a higher level of care. Level III Trauma Centers receive trauma patients from lower level facilities and provide some tertiary care services. The resources of Level III Trauma Centers are varied. Those facilities in rural areas generally have less trauma resources than those facilities located in suburban or urban areas. Level II

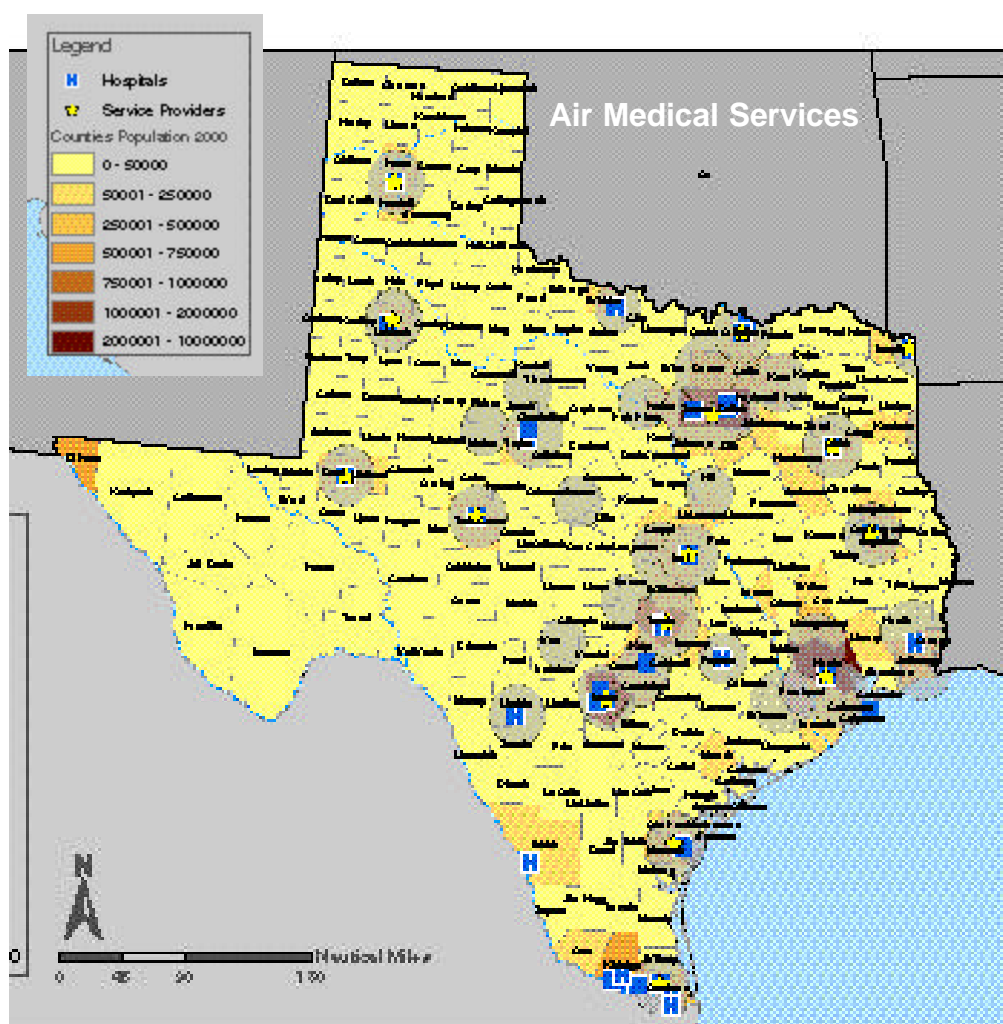


Source: Texas DSHS Office of EMS/Trauma Systems Coordination, January 2005

Trauma Centers receive trauma patients from lower level facilities.

Level I and Level II Trauma Centers have virtually the same clinical capabilities. They are the highest Level of trauma care facilities in the state. Level I Trauma Centers have a trauma research component that Level II Trauma Centers are not required to have.

The individual resources of each area are unique and pose a real challenge to the EMS providers in their area. The decisions the EMS pro-



viders make are dependent upon the resources as well as the condition of the patient. Things to be considered are the scene location, distance and time to the nearest appropriate facility, whether to go by ground or air, as well as the level of training of the responding EMS staff.

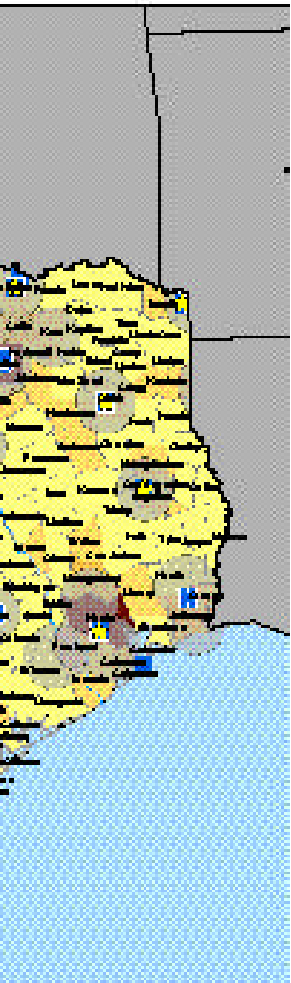
### **Ground EMS services**

Currently Texas has 6 levels of prehospital emergency medical service provider licensure. The levels are as follows: Basic Life Support (BLS), Advanced Life Support (ALS), Mobile Intensive Care Unit (MICU), BLS with ALS capability, BLS with MICU capability, and ALS with MICU capability.

For clarification, there is a difference between Basic Life Support (BLS) provided by an Emergency Medical Technician (EMT-Basic) and Advanced Life Support provided by an EMT-Intermediate (EMT-I), Paramedic (EMT-P), or Licensed Paramedic (LP). The EMT-Basic is a trained individual who is certified by DSHS as minimally proficient to perform emergency prehospital care that is necessary for basic life support and that includes the control of hemorrhaging (bleeding) and CPR. An EMT-Intermediate is an individual who is certified by the department as minimally proficient in performing skills required to provide emergency prehospital or interfacility care by initiating and maintaining under medical supervision certain procedures, including intravenous (IV) therapy and endotracheal and/or esophageal intubation. An EMT-Paramedic or Licensed Paramedic is an individual certified by DSHS as minimally proficient in providing emergency prehospital or interfacility care by providing advanced life support that includes initiation and maintenance under medical supervision of certain procedures, including IV therapy, endotracheal and/or esophageal intubation, electrical cardiac defibrillation and cardioversion, and drug therapy. Licensed and non-licensed First Responder Organizations are also available in many communities to help stabilize patients and provide BLS care prior to the ambulance arrival ([www.tdh.state.tx.us/hcqs/ems/ASystemWeb.PDF](http://www.tdh.state.tx.us/hcqs/ems/ASystemWeb.PDF)).

### **Air medical EMS service**

EMS has progressed in many areas. The utilization of air medical transportation is one facet that saves many lives and can potentially increase the odds for a positive outcome following a life-altering injury and illness.



The concept is simple. When a seriously injured patient (i.e., a car crash with the driver sustaining internal injuries) or a patient with a serious medical illness (i.e., heart attack or stroke) needs transport to a hospital, it is imperative that the patient arrives at the closest medical facility capable of delivering the care needed, as quickly as possible. In many cases a patient may be located a great distance from the hospital, traffic may prevent rapid ground transport, or some other reason, and air transport is the best transportation solution.

Air medical transport is provided by 2 means, fixed wing (airplanes) and rotor wing (helicopters). Patients being transported longer distances usually go by fixed wing aircraft, which are faster and can fly farther. These patients are typically being transported from one medical facility to another and obviously require the patient be delivered to and from an airport where the airplane is located via ambulance. Rotor wing aircraft can go directly to a scene and land, then transport the patient to the nearest appropriate facility. Typically, rotor wing aircraft don't transport great distances, but are used for shorter inter-facility transports, as well as scene flights.

The medical crew aboard either type of aircraft usually includes a registered nurse and paramedic. In some instances, other or additional medical staff are incorporated, such as respiratory technicians, specialty nurses and possibly even doctors.

Any hospital that is located in a city with an airport, or even a landing strip, has access to fixed wing transport. On the other hand, rotor wing services are typically located only in or near cities with a higher concentration of people. While some of the larger metropolitan areas have had rotor wing service in their cities for 25 years or longer, availability has improved dramatically in just the last 5 to 10 years. Still, there are vast regions, especially in the rural and frontier areas of the Panhandle, Rio Grande Valley, west and southwest Texas that suffer from inadequate rotor wing coverage.

### **EMS—the rural/frontier dilemma**

Comparing the population, land area, and prehospital capability in rural/frontier Texas, there are 499 responding emergency medical prehospital agencies, 303 licensed providers, and 193 first responder organizations. The provider capability averages out to one responding agency for every 6,333 people, or one responding agency per 422 square miles.

To compound the problem of available immediate health care in rural Texas, data from the Texas State EMS Office documents 21 Texas counties that do not have a licensed EMS organization within their boundaries; currently, providers in neighboring counties are forced to service these lacking areas. An additional problem in Texas is that only 161 (32 percent) of all Texas hospitals are located in rural/frontier counties.

Advanced training for areas responding only at the basic level, as well as equipment for all providers responding to emergencies throughout rural Texas, equates to the difference between life and death for the population of rural Texas. Personnel shortages have intensified the problem, and many EMS providers classified as Advanced Life Support or Mobile Intensive Care Units are unable to staff ambulances with the appropriate level of personnel around the clock in order to maintain these designations.

Of the 193 first responder organizations, only 23 have advanced life support capability while the remaining 170 respond on a basic life support level. Fifty-four of the 131 Texas frontier counties have first responder organizations. Of the 131 frontier counties, only 5 counties have advanced life support organizations, and 22 counties have basic life support organizations.

*There is a serious health care shortage in rural/frontier Texas,* leaving some communities without the higher level of medical care that is available in metropolitan areas. Call volumes are low and, therefore, economic incentives for private operators are minimal, leaving only volunteers to respond to medical emergencies. Small volunteer fire-based EMS organizations, volunteer EMS organizations, and volunteers responding in the form of a first responder organizations step forward in rural Texas to fill the service provider void. There is a strong need for assistance in providing critical services in these low-volume, low tax-based communities that provide life-saving services for not only their residents, but visitors and neighboring counties as well.

Another challenge faced by rural EMS organizations in Texas is their inability to purchase the necessary equipment or maintain the aging and commonly breaking down ambulances. These are basic needs not met in order to provide the most basic ongoing life support care. For example, many advanced capable rural EMS organizations that have manual defibrillation capability are operating with manual defibrillators used during the 1980's rather than the more current technology. Quite a number of

these manual defibrillators were used by urban areas, and sold to these rural organizations due to their becoming obsolete, however, still functional. Rural EMS providers in the state of Texas respond frequently to cardiac emergencies, but are often unable to provide advanced information to the receiving hospital, therefore delaying hospital advanced treatment.

*All ambulance services are unique, yet each shares common challenges. Each ambulance service operates differently, uses different staffing models, has a different payer mix, and has a differing level of community support. All of these differences affect the financial status, the provider workforce, and the ability to provide the equipment needed to provide care. These factors affect the viability of ambulance service operations. There is, however, a common growing need for a majority of the licensed EMS providers. This is the need for functional, safe ambulances to respond and transport patients, and adequate equipment to meet regulations.*

According to the Texas DSHS there are a total of 3,106 licensed ground ambulances in Texas. Of the total amount there are only 696 licensed in rural/frontier Texas. These 696 ambulances make up only 22 percent of the total ambulances in Texas, with an average age of 8 years old. These 696 ambulances average out to one ambulance covering 311 square miles.

Due to the geographic vastness of rural Texas, travel time and expenses for EMS training has become a significant barrier to the recruitment and retention of rural EMS providers as well as the advancement of the state EMS system. As previously stated, many rural EMS personnel serve on a volunteer basis and are unable to travel the long distances required in order to attend classes at the nearest community college or institution of higher learning. They also do not have the funds needed to afford extensive travel.

The resources available to rural EMS organizations are vastly different than the resources available to metro or urban areas. In many rural/frontier areas citizens that call 9-1-1 must wait for longer periods of time to get ambulance response to their emergencies. The common expectation throughout the country is that when 9-1-1 is dialed and an ambulance is requested one will be at their location in a matter of minutes. This isn't